

Appl. No. 10/540,026
Amdt. dated July 9, 2008
Reply to Final Office action of January 9, 2008

REMARKS

Claims 9-10, 13-14 and 17-32 remain in this application.

By this amendment the actual language of the claims has not been revised. However, as the examiner has correctly pointed out in the last Office action, claims 17-28 were previously listed as “Previously presented” but should have been listed as withdrawn from consideration. By this re-submission of the listing of claims, claims 17-28 have been so listed.

Restriction was not Proper

In the amendment dated November 8, 2007, new claims 29-32 were added. In the Office action of January 9, 2008, the examiner held that these new claims 29-32 are directed to a non-elected invention, saying that they are for an invention which is independent or distinct from the invention recited in claims 9-10 and 13-14.

The examiner’s action in this regard was incorrect. Claim 29 recites “**An apparatus** made by the following steps....”. Claims 30-32 each recite “**An apparatus** as recited in claim, wherein the steps also include....”. The steps recited in each of claims 29-32 will result in making the same apparatus as is recited in claims 9-10 and 13-14.

A search of the MPEP, particularly Chapter 800, has revealed no content regarding restricting product-by-process from the product claims

In other words, claims 29-32 are product-by-process claims. Product-by-process claims are apparatus claims, as are claims 9-10 and 13-14. And if the examiner will consider

Appl. No. 10/540,026
Amdt. dated July 9, 2008
Reply to Final Office action of January 9, 2008

properly, claims 29-32 are directed to the same apparatus as is recited in claims 9-10 and 13-14, since the steps recited in the respective claims 29-32 will result in the same structure as recited in claims 9-10 and 13-14. However, the apparatus is recited to a different degree of breadth in each of the respective claims 9-10, 13-14 and 29-32. Again, however, differing breadth is not an indicator of distinct inventions.

The examiner has made the comment that the piezoelectric actuator can be made by another method such as compression of insulation material to the piezo stack. The examiner's statement may be true, but it is of no significance with respect to the consideration of restriction between these claims. If the structure is the same in the two sets of claims, restriction is not proper. And that is the situation for the present claims.

Moreover, MPEP 806.05 does state in part, with emphasis added, *A product defined by the process by which it can be made is still a product claim (In re Bridgeford, 357 F.2d 679, 149 USPQ 55 (CCPA 1966)) and can be restricted from the process if the examiner can demonstrate that the product as claimed can be made by another materially different process; defining the product in terms of a process by which it is made is nothing more than a permissible technique that applicant may use to define the invention.* This paragraph does say that the product-by-process claims may be restrictable from the process claims, and the examiner's comment that the product could be made by a different process is indeed one of the possible reasons for requiring restriction between them. But the MPEP does not give any support whatsoever for restricting between apparatus claims and product-by-process claims.

Appl. No. 10/540,026
Amdt. dated July 9, 2008
Reply to Final Office action of January 9, 2008

The examiner's statement may, in this application, have significance with regard to the application of prior art. For considerations of a potential prior art rejection, product-by-process claims are met by the prior art if the reference(s) teach structure which would be produced by the process recited in the claims, regardless of whether the process for making the structure of the reference(s) was the same as the process which is recited in the claims.

In the instance of the claims presented in this application, the **structure** which would be produced by the steps recited in claims 29-32 is clearly within the same invention as the **structure** which is recited in claims 9-10 and 13-14. Both sets of claims recite **structure**, and both sets of claims are properly rejected if the examiner can find prior art **structure** which meets the **structural** limitations which are delimited by the claims. The **structure** of the two sets of claims **is not patentably distinct** since both sets of claims recite a piezoelectric actuator, and thus the examiner's action of refusing to consider claims 29-32, or in other words holding restriction by prior presentation, was not proper. Claims 29-32 should have been examined along with claims 9-10 and 13-14 in the last Office action.

These two sets of claims are directed to the same invention. Both sets of claims recite structure, a piezoelectric actuator, although the different claims recite the actuator with varying degrees of breadth. But varying breadth is not a valid reason for insisting on restriction when the claims recite the same invention, which these claims do.

Appl. No. 10/540,026
Amdt. dated July 9, 2008
Reply to Final Office action of January 9, 2008

Finality of the last Office Action Should be Withdrawn

Since the action of refusing to consider claims 29-32 was not proper, the **Finality** of the last Office action should be withdrawn so that claims 29-32 can be examined and the results of this examination included within a proper Office action.

As a further note somewhat along the same lines, the original restriction requirement, mailed on June 27, 2007, stated in part, “Inventions I and II are related as product and **process of use.**” This statement clearly is not accurate. The claims are in fact related as “Product,” and “**Method of Manufacture**”, not “**process of use**”. A comparison of claim 9 with claim 17, line 1 will clearly reveal this to be so. In view of the examiner’s misstatement of the content of claims 17-28, the reasons stated for insisting on the restriction “(1) the process for **using the product** as claimed can be practiced with another materially different product, or (2) the product as claimed can be used in a materially different **process of using** that product, see MPEP section 806.05(h)” was totally inappropriate.

Since the Finality of the last Office action was improper, the examiner may wish to also reconsider the reasons for insisting on the restriction and take the opportunity afforded by a new Office action to give valid reasons for the original restriction.

Further Comments

Claims 29-32 are product-by-process claims. In view of the nature of this invention, counsel believes that these claims recite the invention in a fashion which varies from the way this same invention is recited in claims 9-10 and 13-14, and that this difference provides an

Appl. No. 10/540,026
Amdt. dated July 9, 2008
Reply to Final Office action of January 9, 2008

appropriate alternative for reciting the invention which has been elected for this application.

For a prior art rejection of product-by-process claims to be proper, the prior art must show structure which is the same as would be made by the method steps recited as the method of making the product recited in claims 29-32. Such a prior art rejection would be valid if the structure is the same even if the method for making the device is different.

The Prior Art Rejection

The examiner rejected apparatus claims 9-10 and 13-14 as anticipated by Schreiner et

al. Applicant does not agree with this rejection for the following reasons.

From the Schreiner et al reference, a piezoelectric actuator that is provided with an insulating coating is indeed known; the insulating coating is a so-called sintered skin. This skin is created as part of the sintering process, and it appears to be formed from the actual piezoelectric layers of the stack. The reference has no indication whatsoever that an additional insulating layer is applied to the stack while the piezoelectric stack is in its green state, before sintering. The disclosure of Schreiner et al never states that such a layer is added to the stack. In the absence of any disclosure of such a layer being added to the stack, the reference to Schreiner et al has a different structure from what is being recited in the claims of this application. With no disclosure in Schreiner et al of such an insulation layer being added, the skin of Schreiner et al must be formed from the piezoelectric layers of Schreiner et al.

With this being the case, then the insulation layer which results in Schreiner et al will have depressions where the inner electrodes are positioned, so that the insulation layer will

Appl. No. 10/540,026
Amdt. dated July 9, 2008
Reply to Final Office action of January 9, 2008

not have a smooth surface as is recited for applicant's insulation layer.

And an even further problem exists for Schreiner et al in that, according to their disclosure, or perhaps lack thereof, there will apparently be no insulation over the inner electrodes which are shown as exposed by Schreiner et al in figure 3. Schreiner et al never, anywhere in their disclosure, include mention of insulation which will cover the inner electrodes.

The new claims 29-32 recite the invention in a different format, commonly referred to as a product-by-process format.

To meet these claims, all that the examiner needs to show is that the product which will result from the process is known. However, it is applicant's position that this is not the situation, certainly not with regard to the presently cited art.

None of the cited prior art, not even Schreiner et al, teaches an apparatus which has a piezoelectric stack, which also has a coating which consists of the **same material** as the piezoelectric material from which the piezoelectric layers themselves are comprised, with this structure being created prior to sintering the stack as recited in claim 29. Schreiner et al may well sinter their stack and thus obtain a sintered skin on the outside of their piezoelectric layers, see for example Schreiner et al at the last two lines of paragraph 21. But this leaves the problem that the electrodes 11 would never be covered at their edges. Schreiner et al does recite in paragraph 23 the possibility of a sinter skin 17, but Schreiner et al never teaches what this skin is made of, other than being sintered. Schreiner et al never recite adding any coating to the stack, and especially never recite that any such coating is sintered, or that it

Appl. No. 10/540,026
Amdt. dated July 9, 2008
Reply to Final Office action of January 9, 2008

should be made of the same material as the layers of piezoelectric material.

Claim 30 goes on from claim 29 to recite that the structure is sintered after a layer of the piezoelectric material is used as the coating. Again, the cited prior art, and especially the reference to Schreiner et al , does not teach this structure. While Schreiner et al do indicate a sinter skin 17, the reference never makes clear what this skin is made of. If in fact, as apparently assumed by the examiner, it is the same material as the layers themselves, the sinter skin will not be smooth as recited in claim 30. Since Schreiner et al makes no mention of any coating, if the piezoelectric layers are sintered, at internal electrodes there will be rough edges rather than the coating being smooth as recited in claim 30.

Claim 31 goes on to add that after the coating is sintered, portions of the sintered coating are removed. Again, it is applicant's position that the reference to Schreiner et al does not teach this structure, since there is no teaching in Schreiner et al of coating the piezoelectric stack with material which is the same as the material of the piezoelectric layers. And further, in the last 4 lines of paragraph 6, Schreiner et al disclose that any removal of the sinter skin, whatever it happens to be made of, is done before sintering so as to make removal easier. Clearly, Schreiner et al do not teach the structure which is recited in claim 31.

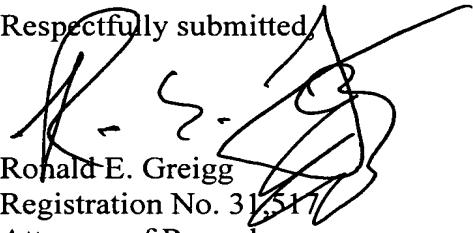
Claim 32 goes on to add that after portions of the coating have been removed, outer electrodes are added. Here again, since it cannot be determined exactly what the sintered skin of Schreiner et al is made of, it cannot properly be said that the structure taught by Schreiner et al is the same as recited in applicant's claims.

Appl. No. 10/540,026
Amdt. dated July 9, 2008
Reply to Final Office action of January 9, 2008

The Commissioner is authorized to charge payment for a three month extension of time, or any other necessary fees in connection with this communication, to Deposit Account No. 07-2100.

For all of the above reasons, taken singly and/or in combination with each other, entry of this amendment and allowance of the claims are courteously solicited.

Respectfully submitted,



Ronald E. Greigg
Registration No. 31,517
Attorney of Record
CUSTOMER NO. 02119

GREIGG & GREIGG, P.L.L.C.
1423 Powhatan Street
Suite One
Alexandria, VA 22314

Tel. (703) 838-5500
Fax. (703) 838-5554

REG/SLS/ncr

JABosch\R304045\Reply to 1-9-08 Final OA.wpd